

- A4
- a) a crystal substrate having a first surface;
 - b) a first array of grooves etched into said first surface;
 - c) a first array of side-polished optical fibers held within said first array of grooves, wherein said first array of side-polished optical fibers held within the substrate form a mechanically integrated set of fiber optic apparatuses.

2. **(amended)** The multiple fiber optic apparatus of claim 1, wherein at least two of said side-polished optical fibers are continuous parts of a single fiber looped around to pass through at least two of the grooves in said first array of grooves.

Amend claims 7 and 8 to the following:

- X5
7. **(amended)** An integrated multiple fiber optic apparatus comprising:
- (a) at least two substrates, wherein each said substrate has a first surface with a first array of grooves suitable for holding an array of side-polished fiber optics; and
 - (b) at least one array of side-polished fiber optics having side-polished areas sandwiched within and between said grooves of two said substrates;
- wherein said first surfaces of said two substrates are positioned substantially plane-parallel and facing one another, and wherein the two arrays of grooves are aligned substantially opposite to one another.

8. **(amended)** The integrated multiple fiber optic apparatus of claim 7, wherein at least one of said side-polished areas participates in forming a 4-port apparatus.

Amend claims 10 and 11 to the following:

- A6
10. **(amended)** A multiple fiber optic apparatus comprising:
- (a) at least a first fiber;
 - (b) at least two side-polished areas spaced a distance apart lengthwise along said first fiber;

- (c) at least two substrate portions each associated with a respective one of said two side-polished areas;
wherein there are no splices or connectors within said first fiber along said distance.

A6 11. **(amended)** The multiple fiber optic apparatus of claim 10 further including a substrate strip having a first side opposite a second side, wherein said two substrate portions are common to said substrate strip, and wherein each of said substrate portions includes a respective portion of groove used to hold the fiber.

} Amend claim 12 and 14 to the following: }

12. **(amended)** The multiple fiber optic apparatus of claim 11, wherein said substrate portions on said substrate strip are located at one of the group including on the same side and on opposite sides.

A7 14. **(amended)** The multiple fiber optic apparatus of claim 13, wherein said 4-port apparatus is an optical add-drop multiplexer.

} Amend claims 15, 16, and 18 to the following: }

15. **(amended)** A multiple fiber optic apparatus comprising:

- (a) multiple substrate strips, wherein at least two of the strips contain multiple grooves;
and
- (b) multiple side-polished fiber optic apparatuses of which at least two are each sandwiched between a pair of said substrate strips and each held within a pair of the grooves;

wherein at least some of said multiple side-polished fiber optic apparatuses, with their sandwiching pair of substrate strips, are able to be stacked to form a multidimensional array of fiber optic apparatuses.

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16. **(amended)** A freestanding, 2-port, side-polished, fiber optic apparatus comprising a fiber having a side-polished area, wherein said side-polished area spans a lengthwise segment of the fiber whereover said fiber is supported only by the rest of the fiber.

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18. **(amended)** A freestanding, 4-port, side-polished, fiber optic apparatus comprising:

- (a) a first fiber having a first side-polished area spanning a first length-segment of said first fiber;
- (b) a second fiber having a second side-polished area spanning a second length-segment of said second fiber;
- (c) a bonded interface between said first and second side-polished areas, wherein said interface spans a lengthwise segment of the fibers;

wherein the fibers are supported by a substrate only outside said lengthwise segment.

Amend claim 19 as follows: S

19. **(amended)** The freestanding, 4-port, side-polished, fiber optic apparatus of claim 18 further including one or more thin films in said bonded interface between said side-polished areas.